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Ronnette Chase Alone
Department of Water Resources
Standing Rock Sioux Tribe
1 North Standing Rock Avenue
Fort Yates, North Dakota 58538

Subject: EPA Comments on Standing Rock Sioux Tribe's Draft Water Quality Standards

Dear Ronni,

This letter provides comments from the U.S. Environmental Protection Agency (EPA), Region 8, Water Quality Section on the draft water quality standards proposed for application to the surface waters of the Standing Rock Indian Reservation (Reservation). The discussion below provides EPA's general comments on program qualification and administration as well as specific recommendations for changes to the proposed water quality standards. Please note that these suggestions are preliminary in nature and should not be considered a final EPA WQS action under CWA § 303(c).

GENERAL COMMENTS

1) The Clean Water Act (CWA) § 518 authorizes EPA to treat Indian tribes as States[1] for the water quality standards program. Once a tribe receives water quality standards program authorization from EPA, the tribe may submit their water quality standards for the protection of reservation surface waters to EPA for review and approval/disapproval under the CWA. The Standing Rock Sioux Tribe (Tribe) has neither applied for, nor received, water quality standards program authorization, so this letter provides a "technical review" of the draft water quality standards without authority under the CWA. It is EPA policy to recognize tribal governments as the primary parties for setting standards, making environmental policy decisions and managing programs on Indian reservations. Should the Tribe receive water quality standards program authorization in the future, then the Tribe may submit its water quality standards to EPA for review and approval under the CWA, for surface waters

[1] CWA Section 518(e) specifically authorizes EPA to treat Indian tribes as States (sometimes referred to as Treatment as a State, or TAS) for purposes of CWA Section 303.

on the Reservation.

2) We encourage the Tribe to complete the adoption of these draft water quality standards under tribal law. EPA recognizes the significant efforts in formulating these draft water quality standards and the environmental protection the standards are designed to provide.

3) We support adoption of the draft water quality standards. Our technical review of the draft standards indicates that they are:
   - scientifically defensible, appropriate, and reasonable,
   - adequate to protect beneficial uses of surface waters on the Reservation, and
   - consistent with the requirements specified in the CWA and EPA's implementing regulations.

4) We believe that adoption of the draft water quality standards will help to restore, maintain, and protect the quality of Reservation surface waters. Water quality standards serve several important functions. They establish water quality goals, which are useful in assessing all types of water quality problems, and they provide a basis for establishing controls on regulated sources of pollution. While the draft water quality standards for the Tribe do not hold CWA authority at this time, they do set clear, attainable goals for the protection of Reservation surface waters.

5) Administering a water quality standards program is an ongoing process. Because new information on water quality conditions necessary to protect uses periodically becomes available, the CWA requires States and authorized Tribes to review their standards periodically, but at least once every three years, and update them as appropriate.

6) We recognize the Tribe's ongoing cooperative efforts and encourage the Tribe to continue to work collaboratively with the States of North Dakota and South Dakota and other entities on issues of mutual interest.

7) We look forward to working with the Tribe to maintain the water quality standards as scientifically defensible and appropriate goals for all surface waters on the Reservation.

COMMENTS ON THE PROPOSED DRAFT STANDARDS

8) Please consider adding a section on Purpose and Authority which would explain the purpose of the water quality standards and legal authority. Following are a couple of language options for you to consider.

   Section ___. **Purpose and Authority**

Purpose
It is the purpose for these water quality standards to prescribe minimum water quality requirements for the surface waters located within the boundaries of the Standing Rock Indian Reservation. It is the further purpose of these tribal water quality standards to protect the public health and welfare, enhance the quality of water, and serve the purposes of the CWA. **OR**

It is the purpose for these tribal water quality standards to prescribe minimum water quality requirements for the surface waters located within the boundaries of the Standing Rock Sioux Reservation. It is the further purpose of these water quality standards to restore, maintain and protect the chemical, physical, biological, and cultural integrity of Reservation waters; to promote the health, social welfare, and economic well-being of the Standing Rock Sioux Tribe, its people, and all the residents of the Reservation; to achieve a level of water quality that provides for all ceremonial and religious uses of the water, the protection and propagation of fish and wildlife, for recreation in and on the water, and all existing and designated uses of the water; to promote the holistic watershed approach to management of Reservation waters of the Standing Rock Sioux Tribe; to provide for the protection of threatened and endangered species and to provide necessary guidance for the protection and/or maintenance of water quality throughout Reservation waters. These standards are designed to establish the uses for which the Reservation waters shall be protected, to prescribe water quality standards to sustain the designated uses, and to protect existing water quality.

Authority
These water quality standards are adopted by the Standing Rock Sioux Tribe pursuant to the Tribe's inherent sovereign authority to protect the public health, safety, and environment on the Standing Rock Indian Reservation. These water quality standards are adopted upon recommendation from the Department of Water Resources, under authority of the Tribal Council. These water quality standards are to be used for all purposes of water quality standards under the Federal Clean Water Act (CWA) consistent with CWA § 518(e) and § 303(c). The Department of Water Resources is responsible for the administration and enforcement of these regulations under the Water Code.

9) **Section 1. Definitions.** Please consider adding the following definitions:

- "Biological criteria," also known as "biocriteria," are narrative expressions or numeric values of the biological characteristics of aquatic communities based upon appropriate reference conditions. Biological criteria serve as an index of aquatic community health.

- "Clean Water Act" or "CWA" means the federal Clean Water Act, 33 U.S.C. §§ 1251-1387, as amended.

- "Criteria" means elements of water quality standards, expressed as a desired condition, constituent concentration, level, or narrative statement, representing a quality of water that supports a particular use. When criteria are met, water quality will generally protect the designated use.

- "Criteria continuous concentration" (CCC) is the highest instream concentration of a toxicant or an effluent to which organisms can be exposed indefinitely without causing unacceptable effect.

- "Criteria maximum concentration" (CMC) is the highest instream concentration of a toxicant or an effluent to which organisms can be exposed for a brief period without causing an acute effect.

- "Cyanotoxins" means toxins produced by cyanobacteria. Cyanobacteria, a type of phytoplankton also known as blue-green algae, are often the cause of algal blooms in fresh water and occasionally in marine water. Their toxins can harm people, animals, aquatic ecosystems, cultural activities, drinking water supplies, recreational activities, including swimming and fishing, the economy, and property values.

- "Designated uses" means those uses specified in water quality standards for each water body segment whether or not they are being attained.

- "Escherichia coli (*E. coli*)" means that portion of the coliform bacteria group, which is present in the intestinal tract, and feces of warm-blooded animals. *E. coli* is used as a direct indicator of human or animal caused fecal contamination in water. Presence of significant levels of *E. coli* in the water has been linked to gastroenteritis in humans.

- "Existing uses" means those uses actually attained in the water body on or after November 28, 1975, whether or not they are explicitly stated as designated uses in the water quality standards or presently exist.

- "Mixing Zone" means that portion of water body adjacent to a point source discharge where mixing results in the dilution of the effluent with the receiving water. Water quality numeric criteria may be exceeded in a mixing zone as conditioned and provided for in Section 12.

- "Near instantaneous and complete mixing" of a pollution source to a river or stream means no more than a 10% difference in bank-to-bank concentrations within a longitudinal distance not greater than 2 stream/river widths. Such mixing generally negates the necessity for a mixing zone.

- "Outstanding Tribal Resource Waters" is a classification for those waters of the Reservation that are of high quality or of exceptional cultural, recreational or ecological significance.

- "Pollutant" means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

- "Pollution" means such contamination, or other alteration of the physical, chemical or biological properties, of any waters of the Tribe, including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the Tribe as will or is likely to create a nuisance or impair any beneficial use of such waters.

- "Reservation" means all lands within the exterior boundaries of the Standing Rock Indian Reservation.

- "Reservation Waters" includes all lakes, rivers, ponds, streams (including intermittent and ephemeral streams), wetlands, and all other surface waters and water courses within the exterior boundaries of the Standing Rock Indian Reservation.

- "Toxic Pollutant" means those pollutants, or combinations of pollutants, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to EPA or the Department, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such organisms or their offspring.

- "Water Quality" means the chemical, physical, biological and cultural characteristics of a water body.

- "Wetland" means any area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

- For consistency, please consider the revising the title for primary contact recreation to full contact recreation. Also, please consider the following alternate definition for primary contact recreation (or use the definition in Section 2): "Full contact recreation" means swimming and any other activities that potentially involve total body immersion, and/or incidental water ingestion or exposure, such as rafting, canoeing, kayaking, scuba diving, and water skiing."

- For consistency, please consider revising the title of the definition for "Secondary contact recreation" in this section to "Incidental contact recreation." Also, please consider the following alternate definition (or use the definition in Section 2): "Incidental contact recreation" means wading and any other similar water recreational activities where there is a reduced likelihood of total body immersion or ingestion of water. Such activities may include fishing, hunting, and commercial and recreational boating."

10) **Section 2. Classifications of Waters of the Reservation.** Please consider the following language as an introduction to this section: "The Tribe's objective in adopting these water quality standards is to provide, wherever attainable, the highest possible water quality commensurate with the following designated uses that shall be

applied to the surface waters of the Reservation."

11) Under "(8) Full contact recreation," please consider the following language for this classification: "surface waters that are suitable for or intended to become suitable for recreational activities in or on the water under circumstances in which the ingestion of water may occur. Such waters include, but are not limited to, those used for bathing, swimming and ceremonial uses."

12) Under "(9) Incidental contact recreation," please consider the following language for this classification: "surface waters that are suitable or intended to become suitable for recreational activities in or on the water under circumstances in which the probability of ingesting water is minimal, including, but not limited to, fishing, wading or streamside recreation."

13) **Section 3. Use Designations of Waters of the Reservation for Purposes of Water Quality Standards**. For ease of reference, please consider amending the Use Designations table on page 4 to list the designated use for each water body rather than use a numeric code. Attached in Table 8 below is an example from Chippewa Cree Tribe's Water Quality Standards Designated Use Table.

14) **Section 4. Numeric Criteria for Water Classifications.** Under the parameter "total ammonia nitrogen" in Tables (3), (4), (5), and (6), please note that EPA updated its Ambient Water Quality Criteria for Ammonia in 2013, which reflects new data on freshwater mussels and snails. More information about EPA's updated ammonia criteria is included in comments on Section 7 of Standing Rock Sioux Tribe's Water Quality Standards.

15) Under "(8) Criteria for Full Contact Recreation," the Tribe's Escherichia coli (*E. coli*) criteria are protective of full contact recreation and there is no need to revise them; however, please be advised that in 2012, EPA revised its recreational water quality criteria. Compliance is based on both a monthly geometric mean (GM) and a statistical threshold value (STV), which are appropriate for all waters. There are two sets of criteria, both of which EPA believes are protective of the designated use of primary contact recreation. EPA recommends that tribes (and states) make a risk management decision regarding illness rate to determine which set of criteria values (both a GM and related STV) to adopt into their water quality standards, and that this risk management decision should be applied to all waters under tribal jurisdiction that are designated for recreation. Adopting criteria based on one illness rate for remaining waters is not recommended. Note that either enterococci or *E. coli* can be selected for fresh waters; however, since the Tribe uses *E. coli* as the primary fecal indicator bacteria, following are the recommended criteria for *E. coli*. Using an estimated illness rate of 36/1,000 primary contact recreators, the criteria for *E. coli* (freshwater) are a GM of 126 colony-forming units (cfu)/100 mL (which is consistent with the Tribe's) and a STV of 410 cfu/100 mL. Using an estimated illness rate of 32/1000 primary contact recreators, the criteria for *E. coli* (freshwater) are a GM of 100 cfu/100 mL and a STV of 320 cfu/100 mL. Table 6 attached at the end of this letter contains EPA's 2012 recommended Recreational Water Quality Criteria.

16) **Section 5. Numeric Water Quality Standards for Toxic Pollutants.** EPA's regulation at 40 CFR § 131.11(a)(1) requires that tribes adopt water quality criteria that protect tribes' designated uses, that such criteria be based on sound scientific rationale, and that there be sufficient parameters or constituents to protect the designated uses. Please note that many of the human health and aquatic life criteria values listed in the table on pages 10-12 of the Tribe's water quality standards are inconsistent with EPA's currently recommended § 304(a) criteria. Please consider revising the table to be consistent with EPA's updated § 304(a) water quality criteria for human health and aquatic life. For updated criteria values, please see EPA's *National Recommended Water Quality Criteria – Human Health Criteria Table* at: https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table, and EPA's *National Recommended Water Quality Criteria – Aquatic Life Criteria Table* at: https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table.

Attached at the end of this letter are tables that contain EPA's currently recommended § 304(a) water quality criteria. The numeric criteria in Tables 1, 2, 3, and 4 reflect EPA's national recommended water quality criteria for aquatic life protection. The numeric criteria in Table 5 reflect EPA's 2015 update to its national recommended water quality criteria for human health protection. You may consider inserting some or all of these tables directly into the Tribe's water quality standards.

Please note that some of the criteria values may need to be adjusted before adopting them into the Tribe's water quality standards. Several criteria are represented by formulas, with the criteria values themselves established on a site-specific basis using ambient data for the required input parameters, such as pH, hardness etc. You can use the Tribe's data to recalculate the criteria values (in accordance with EPA guidance available in Chapter 3 of EPA's *Water Quality Standards Handbook* at: https://www.epa.gov/sites/production/files/2014-10/documents/handbook-chapter3.pdf). In addition, you may choose to adjust certain criteria to reflect local natural background levels. The Water Quality Section can work with you on finalizing the numeric criteria.

Since the publication of the list of parameters that have been published between May 30, 2000 and August 21, 2015, the EPA has published new or updated CWA§ 304(a) aquatic life criteria for aluminum (2018), cadmium (2016) and selenium (2016). Please consider adopting these new or updated CWA § 304(a) criteria which are listed in the table below. Table 3 attached at the end of this letter contains EPA's recommended Selenium Aquatic Life Criteria for Fresh Waters.

Parameter	CAS Number	Acute (ug/L)	Chronic (ug/L)
Aluminum[2] pH 5.0 - 10.5	7429905	1-4,800 *	0.63-3,200 **
Cadmium[3]	7440439	1.8	0.72

[2] See https://www.epa.gov/sites/production/files/2018-12/documents/aluminum-final-national-recommended-awqc.pdf. 83 Fed. Reg. 65663-65665, December 21, 2018.

[3] See https://www.epa.gov/sites/production/files/2016-03/documents/cadmium-final-factsheet.pdf. 81 Fed. Reg. 19176-78, April 4, 2016.

Selenium[4]	7782492		***

*Freshwater acute (1-hour, total recoverable aluminum). The criteria vary as a function of a site's pH, total hardness and dissolved organic carbon. Values are recommended not to be exceeded more than once every three years on average. Values will be different under differing water chemistry conditions.

** Freshwater chronic (4-day, total recoverable aluminum). The criteria vary as a function of a site's pH, total hardness and dissolved organic carbon. Values are recommended not to be exceeded more than once every three years on average. Values will be different under differing water chemistry conditions.

*** Aquatic Life Ambient Water Quality Criterion for Selenium in Freshwater 2016

	Chronic				**Short-term**
Egg-Ovary[1] [mg/kg dw]	**Whole Body**[1] [mg/kg dw]	**Muscle**[1] [mg/kg dw]	**Water Lentic**[1] [ug/L]	**Water Lotic**[1] [ug/L]	**Water**[1] [ug/L]
15.1	8.5	11.3	1.5 (30 day)	3.1 (30 day)	Intermittent exposure equation

[1]A note on hierarchy of table: when fish egg/ovary concentrations are measured, the values supersede any whole-body, muscle or water column elements except in certain situations. Whole body or muscle measurements supersede any water column element when both fish tissue and water concentrations are measured, except in certain situations. Water column values are derived from the egg & ovary concentrations via bioaccumulation modeling. Water column values are the applicable criterion element in the absence of fish tissue measurements, such as waters where fish have been extirpated or where physical habitat and/or flow regime cannot sustain fish populations, or in waters with new discharges of selenium where steady state has not been achieved between water and fish tissue at the site.

17) Please consider adopting the Biotic Ligand Model (BLM) for evaluating copper toxicity for aquatic life. The available toxicity data, when evaluated using the procedures described in the "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses," indicate that freshwater aquatic life should be protected if the 24-hour average and four-day average concentrations do not, respectively, exceed the acute and chronic criteria concentrations calculated by the BLM. Table 2 attached at the end of this letter includes Copper Aquatic Life Criteria for Freshwaters which incorporates use of the BLM. Note that the Tribe does not have to run the model. Running the copper BLM, and collecting input data, can be required of any dischargers that have reasonable potential to exceed their NPDES copper limits.

18) The EPA released national recommendations for the Human Health Recreational Ambient Water Quality Criteria/Swimming Advisories for Microcystins and

[4] See https://www.epa.gov/sites/production/files/2016-07/documents/aquatic_life_awqc_for_selenium_-_freshwater_2016.pdf. See also: 81 Fed. Reg. 45285-45287, July 13, 2016 (https://www.govinfo.gov/content/pkg/FR-2016-07-13/html/2016-16585.htm) and https://www.epa.gov/wqc/aquatic-life-criterion-selenium.

Cylindrospermopsin (AWQC/SA) in May 2019.[5] These AWQC/SA accurately reflect the latest scientific knowledge on the potential human health effects from recreational exposure to these two cyanotoxins. Primary contact recreation is protected in water bodies at or below the recommended concentrations of microcystins and cylindrospermopsin. Please consider adopting these recommendations for Human Health Recreational Ambient Water Quality Criteria for Microcystins and Cylindrospermopsin.

As indicated in EPA's fact sheet,[6] cyanobacteria are naturally occurring photosynthetic bacteria found in freshwater and marine habitats. Under certain environmental conditions, such as elevated levels of nutrients, warmer temperatures, still water, and plentiful sunlight, cyanobacteria can rapidly multiply to form "harmful algal blooms" (HABs). These HABs can result in adverse health effects to humans and animals. Exposure to elevated levels of microcystins can potentially lead to liver damage, and cylindrospermopsin toxicity can affect the kidneys and liver. EPA's recommended magnitude for microcystins and cylindrospermopsin is as follows:

Recommended magnitude for cyanotoxins	
Microcystins	**Cylindrospermopsin**
8 ug/L	15 ug/L

For both cyanotoxins, the recommended duration and frequency depend on their application as a water quality criterion or a swimming advisory, as described in the criteria document and the fact sheet. We recommend that the state consider adopting the EPA's recommended recreational water quality criteria for these cyanotoxins and/or using these recommendations as the basis of swimming advisories for notification purposes in recreational waters to improve protection of public health.

Please note that the EPA also published national drinking water health advisories for these cyanotoxins. Fact sheets and FAQs are available at: https://www.epa.gov/ground-water-and-drinking-water/harmful-algal-blooms-and-cyanotoxins-drinking-water-factsheets-and

19) **Section 7. Aquatic Life Standards for Ammonia**. EPA revised its recommended Ambient Water Quality Criteria for Ammonia in 2013. The updated ammonia criteria reflect new data on freshwater mussels and snails. Ammonia causes direct toxic effects on aquatic life. The updated acute and chronic ammonia criteria were developed to protect organisms from both immediate effects, such as mortality, and longer-term effects on reproduction, growth and survival, respectively. Please consider adopting EPA's updated ammonia criteria. EPA's 2013 *Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater* (EPA 822-R-13-001) guidance can be found at: https://www.federalregister.gov/documents/2013/08/22/2013-20307/final-aquatic-life-ambient-water-quality-criteria-for-ammonia-freshwater-2013. The guidance includes three tables which present calculated ammonia criteria values for

[5] See https://www.epa.gov/sites/production/files/2019-05/documents/hh-rec-criteria-habs-document-2019.pdf.
[6] See https://www.epa.gov/sites/production/files/2019-05/documents/hh-rec-criteria-habs-factsheet-2019.pdf.

combinations of pH and temperature. Page 44 of that document has acute values for water bodies where fish species of the genus Oncorhynchus are present. Page 45 of that document has acute values for water bodies where Oncorhynchus species are absent. Page 49 of that document has chronic values that are protective of waters bodies with or without Oncorhynchus spp. Some tribes and states have adopted these tables in their water quality standards, in addition to, or in place of, the equations presented in Table 4 attached below, which contains Ammonia Aquatic Life Criteria for Fresh Waters.

20) **Section 9. Narrative Water Quality Standards**. Please consider the following language as an introduction to the narrative water quality standards that will apply at Reservation waters: "In addition to the other requirements of these Tribal water quality standards, the below Narrative Criteria apply to all waters of the Standing Rock Indian Reservation."

21) Please consider adding to (d) "taste" as a potential deleterious effect so the sentence may read as follows: "The discharge into the surface waters of the Reservation of materials which will cause undesirable odors or taste is prohibited."

22) Please consider the following language for (e) to address substances that could cause injury to, or are toxic to, or produce adverse physiological responses in humans, animals, or plants: "Pollutants shall not be present in concentrations that cause or may contribute to an adverse effect to human, plant, animal or aquatic life, or in quantities that may interfere with the normal propagation, growth and survival of indigenous aquatic biota."

23) Section 10. Outstanding Tribal Resource Waters. Please consider including the following language in this section: "The Tribe will maintain a comprehensive list of the Reservation waters that have been assigned as an Outstanding Tribal Resource Water (OTRW). Any interested party may nominate a specific Reservation water to be assigned as an OTRW and the Tribe will make the final decision to assign the water as an OTRW, which shall be subject to applicable public participation requirements." The list of OTRWs should be included in the Tribe's water quality standards (e.g., in the Designated Uses table, the Antidegradation Section, or Appendix) or it may be a stand-alone white paper that could be available upon request if there are sensitivities around disclosure of the OTRWs.

24) **Section 11. Antidegradation Policy and Review Process.** EPA recommends that, initially, tribal antidegradation policies be consistent with, or more stringent than, the federal antidegradation policy which is found at 40 CFR 131.12. The draft water quality standards Antidegradation Policy and Review Process section appears to be consistent with that recommendation. This section should also include development and identification of antidegradation implementation methods that implement the Tribe's antidegradation policy. Note that if the Tribe anticipates using its antidegradation policy right away (e.g., for permits, contracts, etc.) then the antidegradation implementation methods should be available right away. There are several good examples of antidegradation implementation methods that the Water

Quality Section can share with you if that would be of interest.

25) **Section 12. Mixing Zones.** Please consider including the following language in this section: "Mixing zones shall not be authorized where they may cause unreasonable interference with, or danger to, designated uses, including, but not limited to, any of the following:

(i) Impairment to the integrity of the aquatic community, including interference with successful spawning, egg incubation, rearing, or passage of aquatic life.

(ii) Lethality to aquatic life passing through the mixing zone.

(iii) Heat in the discharge that may cause thermal shock, lethality, or loss of cold water habitat or may attract aquatic life to a toxic discharge.

(iv) Bioaccumulative pollutants in the discharge.

(v) Pollutant concentrations that exceed maximum contaminant levels at drinking water intakes.

(vi) Conditions that impede or prohibit recreation in or on the waterbody."

26) **Triennial Review.** EPA recommends that all water quality standards include a provision consistent with the federal requirement for triennial review and revision. This federal requirement applies to all state and tribal water quality standards programs under CWA § 303(c) (see 40 CFR 130.20(a)). We recommend a new Triennial Review section following the Purposes and Authority section. Please consider the following language:

"Triennial Review. The Tribe shall from time to time, but at least once every three years, hold public hearings for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards. For example, any waterbody segment with water quality standards that do not include the goal uses specified in CWA § 101(a)(2) shall be re-examined every three years to determine if any new information has become available. If such new information indicates the CWA goal uses are attainable, the Tribe shall revise the water quality standards accordingly. Public hearings shall be held in accordance with tribal law and EPA regulations. Any proposed water quality standards revisions and supporting analyses shall be made available to the public prior to the hearing. Any revisions to these water quality standards shall be consistent with EPA requirements found at 40 CFR § 131.6."

CONCLUSION

EPA commends the Standing Rock Sioux Tribe Water Resources Department for the extensive efforts made in developing these draft water quality standards. I hope these comments are useful to the Tribe in making changes before final adoption of these water quality standards. If there are any questions regarding this letter, please feel free to call me at (303) 312-6238.

Sincerely,

Holly Wirick
Water Quality Section

cc: Monia Ben-Khaled, Tribal Assistance Program

Attachments

Table 1. Aquatic Life Criteria

A		B Freshwater		C Saltwater	
Compound	CAS Number	Criterion Maximum Concentration (CMC) (µg/L) B1	Criterion Continuous Concentration (CCC) (µg/L) B2	Criterion Maximum Concentration (CMC) (µg/L) C1	Criterion Continuous Concentration (CCC) (µg/L) C2
Acrolein	107028	3	3	-	-
Aldrin[a]	309002	3	-	1.3	-
Alkalinity[b]		-	20000	-	-
alpha-Endosulfan[a,c]	959988	0.22	0.056	0.034	0.0087
Aluminum pH 5.0 – 10.5	7429905	Acute (CMC) and chronic (CCC) freshwater aluminum criteria values for a site shall be calculated using the 2018 Aluminum Criteria Calculator (*Aluminum Criteria Calculator V.2.0.xlsx*, or a calculator in R or other software package using the same 1985 Guidelines calculation approach and underlying model equations as in the *Aluminum Criteria Calculator V.2.0.xlsx*) as established in EPA's Final Aquatic Life Ambient Water Quality Criteria for Aluminum 2018 (EPA 822–R–18–001). *To apply the aluminum criteria for Clean Water Act purposes, criteria values based on ambient water chemistry conditions must protect the water body over the full range of variability, including during conditions when aluminum is most toxic.*			
Ammonia	7664417	See Table 4			
Arsenic[d,e]	7440382	340	150	69	36
beta-Endosulfan[a,c]	33213659	0.22	0.056	0.034	0.0087
Cadmium[e]	7440439	See Table 1b		33	7.9
Carbaryl	63252	2.1	2.1	1.6	-
Chlordane[a]	57749	2.4	0.0043	0.09	0.004
Chloride	16887006	860000	230000	-	-
Chlorine	7782505	19	11	13	7.5
Chlorpyrifos	2921882	0.083	0.041	0.011	0.0056
Chromium (III)[e]	16065831	See Table 1b		-	-
Chromium (VI)[e]	18540299	16	11	1100	50
Copper[e]	7440508	See Table 2		Reserved[f]	
Cyanide[g]	57125	22	5.2	1	1
Demeton	8065483	-	0.1	-	0.1
Diazinon	333415	0.17	0.17	0.82	0.82
Dieldrin	60571	0.24	0.056[a]	0.71[a]	0.0019[a]
Endrin	72208	0.086	0.036[h]	0.037	0.0023[h]
gamma-BHC (Lindane)	58899	0.95	-	0.16[a]	-

A		B Freshwater		C Saltwater	
Compound	CAS Number	Criterion Maximum Concentration (CMC) (µg/L) B1	Criterion Continuous Concentration (CCC) (µg/L) B2	Criterion Maximum Concentration (CMC) (µg/L) C1	Criterion Continuous Concentration (CCC) (µg/L) C2
Guthion	86500	-	0.01	-	0.01
Heptachlor[a]	76448	0.52	0.0038	0.053	0.0036
Heptachlor Epoxide[a,i]	1024573	0.52	0.0038	0.053	0.0036
Iron	7439896	-	1000	-	-
Lead[e]	7439921	See Table 1b		140	5.6
Malathion	121755	-	0.1	-	0.1
Mercury[e,j]	7439976	1.4	0.77	1.8	0.94
Methoxychlor	72435	-	0.03	-	0.03
Mirex	2385855	-	0.001	-	0.001
Nickel[e]	7440020	See Table 1b		74	8.2
Nonylphenol	84852153	28	6.6	7	1.7
Oxygen, Dissolved[k]	7782447				
Parathion	56382	0.065	0.013	-	-
Pentachlorophenol	87865	19[l]	15[l]	13	7.9
pH[m]		-	6.5 – 9	-	6.5 – 8.5
Selenium	7782492	See Table 3		290	71
Silver[a,e]	7440224	See Table 1b		1.9	-
Sulfide-Hydrogen Sulfide	7783064	-	2	-	2
Temperature[n]		-	-	-	-
Toxaphene	8001352	0.73	0.0002	0.21	0.0002
Tributyltin (TBT)		0.46	0.072	0.42	0.0074
Zinc[e]	7440666	See Table 1b		90	81
4,4'-DDT[a]	50293	1.1	0.001	0.13	0.001

Footnotes to Table 1 of this section:

a. These criteria are based on the 1980 criteria, which used different Minimum Data Requirements and derivation procedures from the 1985 Guidelines. For example, the CMC derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

b. The CCC of 20mg/L is a minimum value except where alkalinity is naturally lower, in which case the alkalinity cannot be lower than 25% of the natural level.

c. This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.

d. This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic.

e. Freshwater and saltwater criteria for these metals are expressed in terms of the dissolved metal in the water column. See Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria. See Table 1a for conversion factors.
f. Saltwater criteria for copper is reserved for new values under development. Criteria will be added once available.
g. These recommended water quality criteria are expressed as µg free cyanide per liter.
h. The derivation of the CCC for this pollutant did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.
i. This value was derived from data for heptachlor and there was insufficient data to determine relative toxicities of heptachlor and heptachlor epoxide.
j. This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total dissolved mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.
k. For fresh waters, see Quality Criteria for Water, 1986 ("Gold Book"). For marine waters, see Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras (EPA-822-R-00-012).
l. Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH and values displayed in table correspond to a pH of 7.8. $CCC = e^{1.005(pH) - 5.134}$, $CMC = e^{1.005(pH) - 4.869}$
m. For open ocean waters where the depth is substantially greater than the euphotic zone, the pH may not be changed more than 0.2 units from the naturally occurring variation or any case outside the range of 6.5 to 8.5. For shallow, highly productive coastal and estuarine areas where naturally occurring pH variations approach the lethal limits of some species, changes in pH should be avoided but in any case should not exceed the limits established for fresh water, *i.e.*, 6.5-9.0.
n. Criteria are species dependent. See Quality Criteria for Water, 1986 ("Gold Book").

Notes to Table 1

1. Freshwater and saltwater aquatic life criteria apply as specified in paragraphs (d)(1) of this section.
2. Because of variations in chemical nomenclature systems, this listing of toxic pollutants does not duplicate the listing in Appendix A to 40 CFR Part 423 - 126 Priority Pollutants. The Chemical Abstracts Services (CAS) registry numbers provide a unique identification for each chemical.

Table 1a: Conversion Factors for Dissolved Metals Criteria

Metal	Freshwater CMC	Freshwater CCC	Saltwater CMC	Saltwater CCC
Arsenic	1.000	1.000	1.000	1.000
Cadmium	1.136672-[(ln hardness)(0.041838)]	1.101672-[(ln hardness)(0.041838)]	0.994	0.994
Chromium III	0.316	0.860	—	—
Chromium VI	0.982	0.962	0.993	0.993
Copper	0.960	0.960	0.83	0.83
Lead	1.46203-[(ln hardness)(0.145712)]	1.46203-[(ln hardness)(0.145712)]	0.951	0.951
Mercury	0.85	0.85	0.85	0.85
Nickel	0.998	0.997	0.990	0.990
Selenium	—	—	0.998	0.998
Silver	0.85	—	0.85	—
Zinc	0.978	0.986	0.946	0.946

Table 1b: Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent

Chemical	mA	bA	mC	bC	Freshwater Conversion Factors (CF) CMC	CCC
Cadmium	0.9789	-3.866	0.7977	-3.909	1.136672-[(*ln*hardness)(0.041838)]	1.101672-[(*ln*hardness)(0.041838)]
Chromium III	0.8190	3.7256	0.8190	0.6848	0.316	0.860
Lead	1.273	-1.460	1.273	-4.705	1.46203-[(*ln*hardness)(0.145712)]	1.46203-[(*ln*hardness)(0.145712)]
Nickel	0.8460	2.255	0.8460	0.0584	0.998	0.997
Silver	1.72	-6.59	—	—	0.85	—
Zinc	0.8473	0.884	0.8473	0.884	0.978	0.986

Hardness-dependent metals criteria are calculated using the following equations:

CMC (dissolved) = exp{mA [*ln*(hardness)]+ bA} (CF)

CCC (dissolved) = exp{mC [*ln*(hardness)]+ bC} (CF)

Table 2. Copper Aquatic Life Criteria for Fresh Waters

Metal	CAS No.	Criterion Maximum Concentration (CMC) [a] (µg/L)	Criterion Continuous Concentration (CCC) [b] (µg/L)
Copper	7440508	Acute (CMC) and chronic (CCC) freshwater copper criteria shall be developed using EPA's 2007 *Aquatic Life Ambient Freshwater Quality Criteria—Copper* (EPA–822–R–07–001), which incorporates use of the copper biotic ligand model (BLM). Where sufficiently representative ambient data for DOC, calcium, magnesium, sodium, potassium, sulfate, chloride, or alkalinity are not available, the Tribe shall use the 10th percentile values from publicly available peer-reviewed datasets such as the US Geological Survey National Waters Information System (NWIS) and EPA's Storage and Retrieval Data Warehouse.	

[a] The CMC is the highest allowable one-hour average instream concentration of copper. The CMC is not to be exceeded more than once every three years.

[b] The CCC is the highest allowable four-day average instream concentration of copper. The CCC is not to be exceeded more than once every three years.

Table 3. Selenium Aquatic Life Criteria for Fresh Waters

Criterion Element	Magnitude	Duration	Frequency
Fish Tissue[a] (Egg-Ovary)[b]	15.1 mg/kg dw	Instantaneous measurement[c]	Not to be exceeded
Fish Tissue[a] (Whole Body or Muscle)[d]	8.5 mg/kg dw or 11.3 mg/kg dw muscle (skinless, boneless filet)	Instantaneous measurement[c]	Not to be exceeded
Water Column[e] (Monthly Average Exposure)	1.5 µg/L in lentic aquatic systems 3.1 µg/L in lotic aquatic systems	30 days	Not more than once in three years on average
Water Column[e] (Intermittent Exposure)[f]	$WQC_{int} = \frac{WQC_{30\text{-}day} - C_{bkgrnd}(1 - f_{int})}{f_{int}}$	Number of days/month with an elevated concentration	Not more than once in three years on average

[a] Fish tissue elements are expressed as steady-state.

[b] Egg/ovary supersedes any whole-body, muscle, or water column element when fish egg/ovary concentrations are measured.

[c] Fish tissue data provide point measurements that reflect integrative accumulation of selenium over time and space in fish population(s) at a given site.

[d] Fish whole-body or muscle tissue supersedes water column element when both fish tissue and water concentrations are measured.

[e] Water column values are based on dissolved total selenium in water and are derived from fish tissue values via bioaccumulation modeling. Water column values are the applicable criterion element in the absence of steady-state condition fish tissue data.

[f] Where $WQC_{30\text{-}day}$ is the water column monthly element, for either a lentic or lotic waters; C_{bkgrnd} is the average background selenium concentration, and f_{int} is the fraction of any 30-day period during which elevated selenium concentrations occur, with f_{int} assigned a value ≥0.033 (corresponding to 1 day).

Table 4. Ammonia Aquatic Life Criteria for Fresh Waters

mg Total Ammonia Nitrogen (TAN)/L	
Acute (CMC) equation (1 hour average)	$CMC = MIN\left(\left(\frac{0.275}{1+10^{7.204-pH}}+\frac{39.0}{1+10^{pH-7.204}}\right), \left(0.7249\times\left(\frac{0.0114}{1+10^{7.204-pH}}+\frac{1.6181}{1+10^{pH-7.204}}\right)\times\left(23.12\times 10^{0.036\times(20-T)}\right)\right)\right)$
Chronic (CCC) equation (30-day rolling average)*	$CCC = 0.8876\times\left(\frac{0.0278}{1+10^{7.688-pH}}+\frac{1.1994}{1+10^{pH-7.688}}\right)\times\left(2.126\times 10^{0.028\times(20-MAX(T,7))}\right)$
Note: Ammonia criteria are a function of pH and temperature. At the standard normalized pH of 7.0 and temperature of 20 °C, the acute criterion would be 17 mg TAN/L and the chronic criterion would be 1.9 mg TAN/L. Criteria duration: the acute criterion is a one-hour average and the chronic criterion is a thirty-day rolling average. Criteria frequency: Not to be exceeded more than once in 3 years. * Not to exceed 2.5 times the CCC as a 4-day average within the 30-days, *i.e.* 4.8 mg TAN/L at pH 7 and 20 °C. more than once in 3 years on average.	

Note to Table 4: Acute (CMC) and chronic (CCC) freshwater ammonia criteria were developed using EPA's 2013 *Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater* (EPA–822–R–13–001), which is hereby incorporated by reference. Illustrations, tables, and formulae used in the development of these equations can be found on pages 40-52 of the criteria document. Alternative equations for the presence or absence of *Oncorhynchus sp.* (rainbow trout) can be found on pages 41-42 of the document.

Saltwater ammonia criteria are pH and temperature dependent. Reference tables can be found in EPA's 1989 *Ambient Water Quality Criteria for Ammonia (Saltwater).*

Table 5. Human Health Ambient Water Quality Criteria Table: 2015 Update

Parameter	**CAS Number**	**Water & Organisms (ug/L)**	**Organisms Only (ug/L)**	
Acenaphthene	83329	70	90	
Acrolein	107028	3	400	
Acrylonitrile	107131	0.061	7.0	
Aldrin	309002	0.00000077	0.00000077	
alpha-Hexachlorocyclohexane	319846	0.00036	0.00039	
alpha-Endosulfan	959988	20	30	
Anthracene (PAH)	120127	300	400	
Benzene	71432	0.58-2.1	16-58	
Benzidine	92875	0.00014	0.011	
Benzo(a)anthracene	56553	0.0012	0.0013	
Benzo(a)pyrene	50328	0.00012	0.00013	
Benzo(b)fluoranthene	205992	0.0012	0.0013	
Benzo(k)fluoranthene	207089	0.012	0.013	
beta-Hexachlorocyclohexane (HCH)	319857	0.0080	0.014	
beta-Endosulfan	33213659	20	40	

Bis(2-Chloro-1-methylethyl) Ether	108601	200	4000	
Bis(2-Chloroethyl) Ether	111444	0.030	2.2	
Bis(2-Ethylhexyl) Phthalate	117817	0.32	0.37	
Bis(Chloromethyl) Ether	542881	0.00015	0.017	
Bromoform	75252	7.0	120	
Butylbenzyl Phthalate	85687	0.10	0.10	
Carbon Tetrachloride	56235	0.4	5	
Chlordane	57749	0.00031	0.00032	
Chlorobenzene	108907	100	800	
Chlorodibromomethane	124481	0.80	21	
Chloroform	67663	60	2,000	
Chlorophenoxy Herbicide (2,4-D)	94757	1,300	12,000	
Chlorophenoxy Herbicide (2,4,5-TP) [Silvex])	93721	100	400	
Chrysene	218019	0.12	0.13	
Cyanide	57125	4	400	
Dibenzo(a,h)anthracene	53703	0.00012	0.00013	
Dichlorobromomethane	75274	0.95	27	
Dieldrin	60571	0.0000012	0.0000012	
Diethyl Phthalate	84662	600	600	
Dimethyl Phthalate	131113	2,000	2,000	
Di-n-Butyl Phthalate	84742	20	30	
Dinitrophenols	25550587	10	1,000	
Endosulfan Sulfate	1031078	20	40	
Endrin	72208	0.03	0.03	
Endrin Aldehyde	7421934	1	1	
Ethylbenzene	100414	68	130	
Fluoranthene	206440	20	20	
Fluorene	86737	50	70	
gamma-Hexachlorocyclohexane (HCH) [Lindane]	58899	4.2	4.4	
Heptachlor	76448	0.0000059	0.0000059	
Heptachlor Epoxide	1024573	0.000032	0.000032	
Hexachlorobenzene	118741	0.000079	0.000079	
Hexachlorobutadiene	87683	0.01	0.01	
Hexachlorocyclohexane (HCH)-Technical	608731	0.0066	0.010	
Hexachlorocyclopentadiene	77474	4	4	
Hexachloroethane	67721	0.1	0.1	
Indeno(1,2,3-cd)pyrene	193395	0.0012	0.0013	
Isophorone	78591	34	1,800	
Methoxychlor	72435	0.02	0.02	
Methyl Bromide	74839	100	10,000	
Methylene Chloride	75092	20	1,000	

Nitrobenzene	98953	10	600	
Pentachlorobenzene	608935	0.1	0.1	
Pentachlorophenol	87865	0.03	0.04	
Phenol	108952	4,000	300,000	
Tetrachloroethylene	127184	10	29	
Toluene	108883	57	520	
Toxaphene	8001352	0.00070	0.00071	
Trichloroethylene	79016	0.6	7	
Vinyl Chloride	75014	0.022	1.6	
1,1,1-Trichloroethane	71556	10,000	200,000	
1,1,2,2-Tetrachloroethane	79345	0.2	3	
1,1,2-Trichloroethane	79005	0.55	8.9	
1,1-Dichloroethylene	75354	300	20,000	
1,2,4,5-Tetrachlorobenzene	95943	0.03	0.03	
1,2,4-Trichlorobenzene	120821	0.071	0.076	
1,2-Dichlorobenzene	95501	1,000	3,000	
1,2-Dichloroethane	107062	9.9	650	
1,2-Dichloropropane	78875	0.90	31	
1,2-Diphenylhydrazine	122667	0.03	0.2	
Trans-1,2-Dichloroethylene	156605	100	4,000	
1,3-Dichlorobenzene	541731	7	10	
1,3-Dichloropropene	542756	0.27	12	
1,4-Dichlorobenzene	106467	300	900	
2,3,7,8-TCDD (Dioxin)	1746016	5.0E-9	5.1E-9	
2,4,5-Trichlorophenol	95954	300	600	
2,4,6-Trichlorophenol	88062	1.5	2.8	
2,4-Dichlorophenol	120832	10	60	
2,4-Dimethylphenol	105679	100	3,000	
2,4-Dinitrophenol	51285	10	300	
2,4-Dinitrotoluene	121142	0.049	1.7	
2-Chloronaphthalene	91587	800	1,000	
2-Chlorophenol	95578	30	800	
2-Methyl-4,6-Dinitrophenol	534521	2	30	
3,3'-Dichlorobenzidine	91941	0.049	0.15	
3-Methyl-4-Chlorophenol	59507	500	2,000	
p,p'-Dichlorodiphenyldichloroethane (DDD)	72548	0.00012	0.00012	
p,p'-Dichlorodiphenyldichloroethylene (DDE)	72559	0.000018	0.000018	
p,p'-Dichlorodiphenyltrichloroethane (DDT)	50293	0.000030	0.000030	

Table 6. Recreational Water Quality Criteria

Criteria Elements	A		B	
	Estimated Illiness Rate: 32 per 1,000 primary contact recreators		Estimated Illiness Rate: 36 per 1,000 primary contact recreators	
	Magnitude		Magnitude	
Indicator	GM (cfu/100 mL)[a]	STV (cfu/100 mL)	GM (cfu/100 mL)[a]	STV (cfu/100 mL)
Enterococci (marine and fresh water)	30	110	35	130
E. coli (fresh water)	100	320	126	410

[a] *EPA Method 1600*, or another equivalent method, shall be used to measure culturable enterococci. *EPA Method 1603* (U.S. EPA, 2002b), or another equivalent method, shall be used to measure *E. coli*.

	Design Flow
(CMC)	1 Q 10 or 1 B 3
la (CCC)	7 Q 10 or 4 B 3
	Harmonic Mean Flow

Concentration) is the water quality criterion to protect against acute effects in aquatic life and is the highest instream concentration of a priority of a short term- average not to be exceeded more than once every three years on the average;
Concentration) is the water quality criterion to protect against chronic effects in aquatic life and is the highest in stream concentration of a nsisting of a 4-day average not to be exceeded more than once every three years on the average;
ay flow with an average recurrence frequency of once in 10 years determined hydrologically;
and indicates an allowable exceedance of once every 3 years. It is determined by EPA's computerized method (DFLOW model);
ge 7 consecutive day low flow with an average recurrence frequency of once in 10 years determined hydrologically;
and indicates an allowable exceedance for 4 consecutive days once every 3 years. It is determined by EPA's computerized method (DFLOW

ibe Water Quality Standards Designated Use Table

for portions located within the exterior boundaries of the Chippewa Cree Reservation.

	Classification	Type*	Aquatic Life	OTRW**	Recreation Geometric mean/Single sample maximum	Agri-culture	Wild life	Wet-lands	Cultu ral	Indust rial	Drink-ing water
	A-1	P	Cold	X	Primary Contact (32 /126cfu)	X	X	X	X		
	B-1	P	Cold		Primary Contact (126/235 cfu)	X	X	X	X		

						Contact (32/126 cfu)						
	Day Child Creek	A-1	E	Cold		Primary Contact (32/126 cfu)	X	X	X	X		
	Saint Pierre Coulee	B-2	I	Cold-marginal salmonid		Primary Contact (126/235 cfu)	X	X	X	X		
	Wolf Creek	A-1	I	Cold		Primary Contact (32/126 cfu)	X	X	X	X		
	Big Knife Coulee	A-1	P	Cold		Primary Contact (32/126 cfu)	X	X	X	X		
	Bonneau Reservoir	B-1	P	Cold		Primary Contact (126/235 cfu)	X	X	X	X		
	DS Bonneau Dam to Brown's Irrigation Diversion	B-1	P	Cold		Primary contact (126/235 cfu)	X	X	X	X		
	DS Brown's Irrigation Diversion to Reservation Line	B-2	P	Cold-marginal salmonid		Primary contact (126/235 cfu)	X	X	X	X		
	Brown's Reservoir	B- 2	P	Cold		Primary contact (126/235 cfu)	X	X	X	X		

Watershed	Segment	Classification	Type*	Aquatic Life	OTRW**	Recreation Geometric mean/ Single sample maximum	Agri-culture	Wild-life	Wet-lands	Cultu ral	Indust -rial	Drink ing water
Beaver Creek	West Fork Beaver Creek- Reservation Line to confluence with EF Beaver Creek	A-1	P	Cold	X	Primary contact (32/126 cfu)	X	X	X	X		

	Otayachinas Creek (JM 1 Creek, trib to WF Beaver Cr, below green water tank)	A-1	P	Cold	X	Primary contact (32/126 cfu)	X	X	X	X		
	Eagle Creek (trib to WF Beaver Cr)	A-1	P	Cold	X	Primary Contact (32 /126 cfu)	X	X	X	X		
	Amisk Pond	A-1	P	Cold		Primary Contact (32 /126 cfu)	X	X	X	X		
	East Fork Beaver Creek	A-1	P	Cold	X	Primary Contact (32/126 cfu)	X	X	X	X		
	East Fork Reservoir	A-1	P	Cold		Primary contact (32/126 cfu)	X	X	X	X		
	Beaver Creek to Reservation Line	A-1	P	Cold	X	Primary Contact (32/126 cfu)	X	X	X	X		
	Elk Creek	A-1	P	Cold	X	Primary contact (32/126 cfu)	X	X	X	X		
	Cabin Creek	A-1	P	Cold	X	Primary Contact (32/126 cfu)	X	X	X	X		
	Miner's Gulch	A-1	P	Cold	X	Primary Contact (32/126 cfu)	X	X	X	X		
	Revie Creek	A-1	I	Cold		Primary contact (32/126 cfu)	X	X	X			
	Shambo Creek	A-1	I	Cold		Primary Contact (32/126 cfu)	X	X	X			

Watershed	Segment	Classification	Type*	Aquatic Life	OTWR**	Recreation Geometric mean/Single sample maximum	Agri-culture	Wild-life	Wet-lands	Cultu ral	Indust -rial	
Big Sandy Creek (Upper)	Upper Big Sandy Creek Headwaters to SW Reservation	A-1	P	Cold	X	Primary Contact (32/126 cfu)	X	X	X	X		

	line											
	JM 2 Creek (trib to Big Sandy, water pipe)	A-1	P	Cold	X	Primary Contact (32/126 cfu)	X	X	X	X		
	Ranger Creek (Upper Big Sandy Creek headwaters)	A-1	P	Cold	X	Primary Contact (32/126 cfu)	X	X	X	X		
	Black Creek	A-1	P	Cold		Primary Contact (32/126 cfu)	X	X	X	X		
	Mahigan Creek	A-1	P	Cold		Primary Contact (32 /126 cfu)	X	X	X	X		
	Green Creek	A-1	P	Cold		Primary Contact (32/126 cfu)	X	X	X	X		
	Lost Canyon Creek	A-1	P	Cold		Primary Contact (32/126 cfu)	X	X	X	X		
	Timber Creek	A-1	P	Cold		Primary Contact (32/126cfu)	X	X	X	X		
	Centennial Creek	A-1	P	Cold		Primary Contact (32/126 cfu)	X	X	X	X		
	Muddy Creek	A-1	P	Cold		Primary Contact (32/126 cfu)	X	X	X	X		
	Peel Creek	A-1	I	Cold		Primary Contact (32/126 cfu)	X	X	X			

Watershed	Segment	Classifica-tion	Type*	Aquatic Life	OTWR**	Recreation Geometric mean/Single sample maximum	Agri-culture	Wild-life	Wet-lands	Cultu ral	Indust -rial	Drink-ing water
Big Sandy Creek (Lower)	Lower Big Sandy mainstream	B-3	P	Warm		Primary Contact (126/235 cfu)	X	X	X	X		

	Gorman Creek	B-2	P/I	Cold-marginal salmonid		Primary contact (126/235 cfu)	X	X	X	X		
	North Fork Gorman Creek	B-2	P/I	Cold-marginal salmonid		Primary contact (126/235 cfu)	X	X	X	X		
	South Fork Gorman Creek	B-2	P/I	Cold-marginal salmonid		Primary contact (126/235 cfu)	X	X	X	X		
	Camp Creek upstream Williamson Range Reservoir	B-2	I	Cold-marginal salmonid		Primary contact (126/235 cfu)	X	X	X	X		
	Camp Creek downstream Williamson Range Reservoir	B-3	E	Warm		Primary contact (126/235 cfu)	X	X	X	X		
	Williamson Range Reservoir	B-1	P	Cold		Primary contact (126/235 cfu)	X	X	X	X		
	Duck Creek-Headwaters to Reservation boundary	B-1	P	Cold		Primary contact (126/235 cfu)	X	X	X	X		
	Duck Creek – lower portion on Reservation	B-2	P	Cold-marginal salmonid		Primary contact (126/235 cfu)	X	X	X	X		
	Dry Fork Creek	B-2	I	Cold-marginal salmonid		Primary contact (126/235 cfu)	X	X	X	X		
	Dry Fork Reservoir	B-2	I	Cold-marginal salmonid		Primary contact (126/235 cfu)	X	X	X	X		
	Sand Coulee	B-3	I	Warm		Primary Contact (126/235 cfu)	X	X	X	X		
	Dry Fork Coulee	B-3	I	Warm		Primary Contact (126/235 cfu)	X	X	X	X		
	Schwartz Coulee	B-3	I	Warm		Primary Contact (126/235 cfu)	X	X	X	X		
	Gravel Coulee	B-3	I	Warm		Primary	X	X	X	X		

						Contact (126/235 cfu)						
	Keifer Coulee	B-3	I	Warm		Primary Contact (126/235 cfu)	X	X	X	X		
	Towe Ponds	B-3	P	Warm		Primary Contact (126/235 cfu)	X	X	X	X		

*Type of waterbody: P = Perennial; I = Intermittent; E = Ephemeral

Use Classifications:

A-1 - must be maintained suitable for drinking, culinary, and food processing purposes after conventional treatment for removal of naturally present impurities. Water quality is to be suitable for bathing, swimming and recreation, wildlife (included but not limited to birds, mammals, amphibians, and reptiles); the growth and propagation of salmonid fishes and associated aquatic life, and agricultural and industrial water supply purposes. In addition, certain confidential areas of "A-1" water bodies are reserved for cultural use. This classification allows for the highest level of protection. E.coli bacteria levels permitted at 32 colony forming units/100mls (geometric mean) in order to provide highest level of protection for ceremonial and cultural uses.

B-1- same as A-1 but allows higher level of E.coli bacteria (126 colony forming units/100mls, geometric mean), still within safe level for primary contact (i.e. swimming, kayaking, canoeing, and any other activity where contact and immersion in the water are likely).

B-2- same as B-1 but with marginal propagation of salmonids.

B-3 - same as B-2, but allows warmer temperatures and growth and propagation of non-salmonid fish (ie. cool water/temperate species).

Waterbody Designated Use Definitions and Assessment

Use Classification	Definition	Assessment/Application
Aquatic Life and Fishery Cold or Warm	Aquatic life means any plants or animals which live at least part of their life cycle in water (i.e. phytoplankton (algae), zooplankton, invertebrates (insects and shellfish), and vertebrates (amphibians, turtles, and fish).	Aquatic life use includes water quality, habitat conditions, spawning and nursery areas, and food sources necessary to sustain populations of aquatic species including game and non game fish.
Outstanding Tribal Resource Waters (OTRW)	Waters that because of their quality, location, and significance constitute an outstanding Tribal resource, recognized as possessing special ecological, cultural, aesthetic, educational, recreational, or scientific qualities.	The water quality, physical and biological integrity which existed for the water at the time of designation will be maintained and protected. Surface waters in which no further water quality degradation by point or non point source discharges will be allowed. Non point sources of pollution shall be controlled through implementation of appropriate best management practices.
Recreation	Primary contact recreation means activities in or on the water where it could be expected to result in the ingestion of, or immersion in,	Primary Contact Recreational use protection involves maintaining a level of water quality which is safe for human contact that may

	water, such as swimming, water skiing, kayaking, ceremonial and cultural uses, or other activities where ingestion or immersion in the water is likely.	involve direct ingestion of water, vapor, or ice. E. coli bacteria are used as indicators of fecal contamination and potential exposure to pathogenic bacteria and viruses. EPA has calculated the potential risk of illness from ingesting water during primary contact recreation (swimming, kayaking, water skiing, etc.) based on colony counts of E. coli bacteria. EPA guidance recommends a risk level associated with 8 illnesses per 1000 swimmers (a 1-2% risk that swimmers will suffer from gastrointestinal illness from swimming in recreational waters). Tribal water quality criteria for Class B-1, Class B-2, and Class B-3 (E. coli geometric mean of 126 cfu), represent a risk of 8 to 10 illnesses per 1000 swimmers. Class A-1 levels are established for even lower risk levels, at 32 cfu/100 mls (geometric mean) in order to protect for ceremonial/cultural uses in these more pristine watersheds.
Agriculture	Agricultural activities refer to livestock grazing water use and crop production irrigation uses.	Water quality shall be maintained that is safe for livestock watering and irrigation of crops.
Wildlife	Wildlife includes but is not limited to, birds, mammals, amphibians and reptiles.	Water quality shall be maintained that is safe for contact and consumption by wildlife, including but not limited to birds, mammals, amphibians and reptiles.
Wetlands	Wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including lotic, riparian, and lentic, pothole, and isolated areas. Wetlands generally include but are not limited to stream riparian corridors, swamps, marshes, bogs, potholes, springs, fens and similar areas whether or not a nexus to navigable waters as defined in the Federal Clean Water Act has been determined. Wetlands are recognized as "Waters of the Tribe."	Water quality shall be maintained that protects the ecological functioning and biology of wetlands, including plant communities, soil character and structure, microorganisms, and wildlife species.
Cultural	"Cultural uses" means waters may be used for cultural, ceremonial, and religious uses to support and maintain the way of life and traditional activities practiced on the Rocky Boy Reservation. These activities include, but are not limited to cultural, spiritual, and medicinal practices which include the preservation and utilization of riparian habitat, as well as associated wetland species, significant to the cultural values of the Chippewa Cree Tribe. These practices may include full contact and incidental contact with surface waters.	Water quality shall be maintained that is safe for full contact and incidental contact with surface waters (i.e. primary contact levels of E. coli bacteria).
Industrial	Industrial means waters that may be used for industrial purposes.	Water quality shall be maintained that is suitable for industrial uses.
Drinking Water	Drinking water means waters that may be used for public water supply.	Water quality shall be maintained that is safe for drinking, culinary, and food processing purposes after simple disinfection.